

--Heatable Calender Roll

**BACKGROUND OF THE INVENTION**

1. Field of the Invention

The invention relates to a calender roll heated by means of a heating medium in a liquid and/or gaseous state of matter, comprising a roll body provided with peripheral bores and is provided on both ends with flange journals provided with supply and discharge lines for the heating medium, and wherein the respective end areas of the peripheral bores are provided with thermal insulation bushings. Such calender rolls are commonly used, for example, for paper manufacture. The further development of the processes in the web manufacture, however, requires increasingly a more exact cylindricity of the heatable calender rolls as a result of changed temperatures and different web widths. In this connection, in particular thermally caused dimensional differences of a few  $\mu\text{m}$  can be the deciding factor in regard to the quality or even rejection of the product to be manufactured.

2. Description of the Related Art

It has been attempted to compensate shape errors of the heatable

calender rolls, which result from the mechanical bending and from areas of different temperatures, by means of bending compensation rolls (multizone rolls). However, this has only been successful as long as the shape errors have a relatively long wave length and the correction potential of the bending compensation roll is sufficient. On the other hand, in the case of heatable calender rolls it has been attempted to control the heat introduction into the roll bodies with different thermal insulations. Also, the targeted temperature adjustment or insulation of the journal flanges for compensation of errors is known. Frequently, the opening areas of the peripheral bores are provided with fixedly mounted thermal insulation bushings in order to reduce the heat transfer into the end areas of the roll bodies and thus across the areas which are used by the web width.

#### **SUMMARY OF THE INVENTION**

The invention has the object to adjust the heat transfer from the peripheral bores, through which the heating medium flows, to the mantle surface of the roll body to the respective heat demand such that the detrimental dimensional differences are maintained within limits that do not negatively affect the product.

This object is solved with the features of claim 1. They allow a variable thermal edge isolation of the roll body and thus

influencing of the thermal profile of the roll body in its edge area, by which its adjustment to the different heat removals in the web width end areas as well as the web width that is being processed can be taken into account, wherein a simple, effective, and central adjustment possibility is provided.

Advantageous, expedient, and inventive further developments of the subject matter of the claims can be taken from the dependent claims.

In detail, the features of the invention are explained by means of the description of an embodiment in connection with a drawing illustrating it.

#### **BRIEF DESCRIPTION OF THE DRAWING**

The single Figure of the drawing is a sectional view of a roll body of a heatable calender roll according to the present invention.

#### **DETAILED DESCRIPTION OF THE INVENTION**

In the drawing two details of the roll body 1 of the heatable calender bowl are represented in section and discontinuous which are adjoined by two flange journals 2, 3 shown in vertical section and also discontinuous. In the area of the outer mantle,

peripherally arranged bores 4 are provided which are supplied by a supply line arranged in the flange journal 3 with a liquid and/or gaseous heating medium. The flange journal 3 for this purpose is--

**Marked-up version of amended pages 1 and 2 of the specification**

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